

Claims

- [c1] 1. An apparatus for dislodging contaminants from a surface of a machine tool, the machine tool having a spindle adapted to turn about an axis or rotation and a housing disposed around and spaced apart from the spindle, the apparatus comprising:
a support plate;
an arbor disposed on the support plate, the arbor adapted for attachment to the spindle; and
a cleaning member disposed on and extending from the support plate;
wherein the cleaning member contacts a surface of the machine tool to remove contaminates.
- [c2] 2. The apparatus of claim 1 wherein the cleaning member is a plurality of flexible bristles.
- [c3] 3. The apparatus of claim 1 wherein the cleaning member is a flexible wiper.
- [c4] 4. The apparatus of claim 1 wherein the cleaning member is disposed along an inside edge of the support plate for cleaning an exterior surface of the spindle when the apparatus is rotated about the axis of rotation by the

spindle.

- [c5] 5. The apparatus of claim 1 wherein the cleaning member is disposed along an outside edge of the support plate for cleaning an interior surface of the housing when the cleaning member contacts the interior surface.
- [c6] 6. The apparatus of claim 1 wherein the cleaning member is disposed radially about the axis of rotation.
- [c7] 7. The apparatus of claim 1 wherein the cleaning member is disposed at an angle relative to the support plate.
- [c8] 8. The apparatus of claim 1 further comprising a conduit disposed on the support plate, the conduit having an end connected to a source of pressurized fluid and an aperture for discharging the pressurized fluid toward the machine tool to remove contaminants.
- [c9] 9. An apparatus for dislodging surface contaminants from a machine tool, the machine tool having a spindle adapted to turn about an axis or rotation and a housing disposed around and spaced apart from the spindle, the apparatus comprising:
 - a fixture secured to the machine tool in a stationary position;
 - a support plate rotatably mounted on the fixture;
 - a first coupling member disposed on the support plate,

the coupling adapted to engage a second coupling member disposed on the spindle; and
a cleaning member disposed on and extending from the support plate;
wherein when the first and second coupling members are engaged the spindle rotates the support plate about the axis of rotation and the cleaning member contacts a surface of the machine tool to remove contaminants.

- [c10] 10. The apparatus of claim 9 wherein the cleaning member is disposed along an inside edge of the support plate for cleaning an exterior surface of the spindle when the apparatus is rotated about the axis of rotation.
- [c11] 11. The apparatus of claim 9 wherein the cleaning member is a plurality of flexible bristles.
- [c12] 12. The apparatus of claim 9 wherein the cleaning member is a flexible wiper.
- [c13] 13. The apparatus of claim 9 wherein the cleaning member is disposed radially about the axis of rotation.
- [c14] 14. The apparatus of claim 9 wherein the cleaning member is disposed at an angle relative to the support plate.
- [c15] 15. The apparatus of claim 9 further comprising a conduit disposed on the support plate, the conduit end con-

nected to a source of pressurized fluid and an aperture for discharging the pressurized fluid toward the machine tool to remove contaminants.

- [c16] 16. A method for removing contaminates from a surface of a machine tool with a cleaning apparatus, the cleaning apparatus having a support plate, a coupling disposed on the support plate, and a cleaning member disposed on the support plate and the machine tool having a spindle adapted to turn about an axis of rotation and a housing disposed around and spaced apart from the spindle, the method comprising:
coupling the cleaning apparatus to the spindle such that the cleaning apparatus may rotate about the axis of rotation; and
moving the spindle so that a cleaning member attached to the cleaning apparatus contacts a surface of the machine tool.
- [c17] 17. The method of claim 16 wherein the step of moving the spindle further comprises rotating the spindle about the axis of rotation to cause the cleaning apparatus to rotate about the axis of rotation.
- [c18] 18. The method of claim 16 wherein the step of moving the spindle further comprises rotating the spindle to a predetermined position, locking the spindle so that it

cannot rotate about the axis of rotation, and repositioning the spindle along an axis perpendicular to the axis of rotation so that the cleaning member slidingly contacts an interior surface of the housing to remove contaminants from the interior surface.

[c19] 19. The method of claim 16 wherein the step of coupling the cleaning apparatus to the spindle further comprises advancing the spindle along the axis of rotation to engage the cleaning apparatus.

[c20] 20. The method of claim 16 wherein the step of coupling the cleaning apparatus to the spindle further comprises positioning the cleaning apparatus adjacent to the spindle with an automated tool change mechanism before coupling the cleaning apparatus to the spindle.